

## Abstract

Classifying a portion of an electrical signal propagating through a conductor includes digitizing the electrical signal to provide a digitized signal, providing a plurality of stored digitized signals, wherein each stored digitized signal corresponds to a type of fault for the conductor, comparing the digitized signal to each of the stored digitized signals to determine a score therefore, if the score is less than a predetermined value for a particular one of the stored digitized signals, classifying the portion of the electrical signal as a fault corresponding to the particular one of the stored digitized signals, and, if none of the scores are less than the predetermined value, classifying the portion of the electrical signal as having no fault. Classifying a portion of an electrical signal may also include converting the digitized electrical signal to reflection coefficients.